ON THE TRANSIENT ELECTROMAGNETIC TORQUE COMPONENTS OF THE INDUCTION MACHINE WHEN SUPPLYING WITH ROTOR IN MOTION

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Abstract. The paper presents the expression of the induction machine's electromagnetic torque in the case of the machine which is connected at supply voltage when the rotor is already rotating at a certain angular speed. The spatial phasor machine model is used; the expressions of the stator, rotor and magnetizing currents, previously established, act as the starting point. Because each current contains two natural components and a forced one, the final torque expression results to be made of nine components. The analysis of the expressions thus obtained leads to the division of the components into three groups: non-periodic components damped harmonic components and a constant component. For each category we determine the expressions and characteristics and present the aspect of the variation in time.

Keywords: induction machine, transient, electromagnetic torque.